

| Community | Current Treatment Technology | Would the criteria apply? Or is there dilution capability? | Design Flow (MGD) | Actual Flow (MGD) | Community Population (Census 2010) | Number of Households (American Community Survey 2005-2009) |
|--------------------------|--|--|-------------------|-------------------|------------------------------------|--|
| Big 7 Communities | | | | | | |
| Kalispell | BNR (modified Johannesburg); 3.1 to 5.4 MGD; avg. .12 mg/l TP; 10 mg/l TN. | Yes. EOP; Ashley Creek | 5.4 | 3.10 | 19,927 | 7,705 |
| Bozeman | some BNR now; 5-stage Barrdenpho; new plant will be BNR (1 mg/l TP; 3 mg/l TN starting in 2011); current 5.8 MGD; increasing to 13.9 mgd | Yes. Also Gallatin TMDL in the works. | 13.8 | 5.80 | 37,280 | 14,614 |
| Helena | BNR; 3 mg/l TP; 10 mg/l TN; design capacity of 5.4; current discharge ~3.0 MGD | Yes. WLA set in TMDL based on numeric criteria. | 5.4 | 3.00 | 28,190 | 12,337 |
| Butte | Current technology is activated sludge (TN of 18.5 mg/l; TP of 2.11 mg/l); under Order to Construct to membrane BNR; current design is 8.5 MGD; talking about lowering to 6.1 MGD. Sewer Fee based on DEQ estimates. Included in current fee is \$27 million upgrade in new capital costs and \$1.125 million in O&M costs which would bring them to 5 TN and 0.1 TP | Yes. EOP. | 8.5 | 4.00 | 33,525 | 14,041 |
| Billings | 2ndary treatment; Design flow of 26 MGD (avg.) and 40 MGD max. | Yes. Discharge into the Yellowstone River. | 26 | 26 | 104,170 | 41,841 |
| Missoula | advanced secondary treatment facility with biological nutrient removal and ultraviolet disinfection; meets Clark Fork criteria w/ mixing zone. 8.2 mg/l TN; 0.16 -0.4 mg/l TP; get a mixing zone, meeting criteria currently. BNR. Design flow = 12 MGD ; actual flow = 9 MGD. (designed for 10 and 1). (HDR) | Yes. With mixing zone. Currently meeting criteria after mixing zone. | 12 | 9 | 66,788 | 27,553 |

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|---|---|--|-------|------|--------|--------|
| Great Falls | conventional 2ndary activated sludge (max 21-MGD; avg. 10 MGD) | Yes. Missouri River | 26 | 26 | 58,505 | 23,998 |
| Other Large Communities > 1 MGD | | | | | | |
| Livingston | discharges into the Yellowstone; permit renewed in 2010; mechanical plant w/ 2 primary clarifiers, 3 rotating biological contactors, UV, installing co-composting. DMR shows 11 mg/l TN average (20 mg/l for May) and 2 mg/l TP (3 mg/l for May). | Yes. Discharge into the Yellowstone River. | 5 | 2 | 7,044 | 3,188 |
| Miles City | 2ndary treatment plus oxidation ditch. 2011 permit. Algae plant study to remove nutrients. Extended aeration system w/2 oxidation ditches w/rotating brush aerators; 2 clarifiers and chlorine basin. TN avg of 23.5 mg/l; TP avg. 3.6 mg/l. | Yes. Discharge into the Yellowstone River. | 3.7 | 2 | 8,410 | 3,518 |
| Hamilton | BNR facility. t w/ extended aeration system. Oxidation ditch w/ rotating brush aerators. 3 clarifiers. Upgraded in 2010. TN avg. 5.5 mg/l; TP avg. 5 mg/l. | Yes | 1.98 | 0.68 | 4,348 | 2,092 |
| Lewistown | BNR plant. Focus on TP removal. 0.8 mg/l TP; 3-4 mg/l TN. | Yes | 2.5 | 1.5 | 5,901 | 2,727 |
| Havre | Discharges into the Milk River. Permit renewed in 2011. Activated sludge facility with effluent chlorination. 2006-2010 data showed avg. TP of 3.4 (TN not required). 2011 DMR showed TN of 19.4 mg/l; Tp of 1.3 mg/l. | Yes | 1.8 | 1.38 | 9,310 | 3,709 |
| Non-Lagoon Facilities with < 1MGD | | | | | | |
| Columbia Falls | Newer plant. Designed to achieve 8 mg/l TN | Yes | 0.766 | 0.37 | 4,688 | 1,621 |

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|--------------|--|------|-------|-------|-------|-------|
| Manhattan | Discharges into Diva Ditch. Permit renewed in 2010. Denitrification with fixed film suspended growth system, clarifiers and aerobic sludge digestion, UV. DMR data from winter quarter shows 11 mg/l TN and 1 mg/l TP. 2008-2010 showed avg. TN of 14 mg/l TN and 4 mg/l TP. | Yes | 0.6 | 0.4 | 1,520 | 523 |
| Lolo | No steps towards nutrient removal. For Lolo, TN is generally less than 30 mg/l and TP less than 7. Generally heaving loadings for Lolo. Sewer rates--Lolo \$30.25-ish/mo - (RSID) based on property values | Yes | 0.34 | 0.38 | 3,892 | 1,060 |
| Stevensville | Stevensville is generally a little better with TN generally below 20 and TP less than 4. | Yes | 0.3 | 0.29 | 1,809 | 795 |
| Lagoons | | | | | | |
| Philipsburg | lagoon - ref: Gary Swanson, consulting engineer- 15TN, 2TP | Yes. | 0.2 | 0.2 | 820 | 399 |
| Cut Bank | Lagoon. | Yes | 0.643 | 0.643 | 2,869 | 1,290 |
| Deer Lodge | Moving from an existing lagoon to mechanical plant with land application. Ref: planning document--To get to variance only. Because this would be a land application system, so theoretically, the N and P would be zero to the Clark Fork | Yes | 3.3 | 1.06 | 3,111 | 1,522 |
| Glendive | domestic WW lagoon; 3 cell facultative; current O&M costs are <\$; 8-10 capital costs for new plant. O&M increase of ~\$300,000. new avg. 1.15 MGD; PER completed to upgrade to mechanical SBR or BNR plant. | Yes | 1.3 | 0.6 | 4935 | 1883 |

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|-----------|---------|-----|-------|-------|------|------|
| Red Lodge | Lagoon. | Yes | 1.2 | 0.65 | 2125 | 1055 |
| Big Fork | Lagoon. | Yes | 0.5 | 0.3 | 4270 | 1708 |
| Highwood | Lagoon. | Yes | 0.026 | 0.015 | 176 | 53 |
| Circle | Lagoon. | Yes | 0.16 | 0.065 | 615 | 234 |
| | | | | | | |

NOTE: Operation costs include energy and chemical costs only and do not include labor and maintenance cost. As such, these numbers are on the low side.

NOTE: The numbers are intended to provide ROUGH ESTIMATES for discussion purposes and do not reflect the site-specific conditions at each plant.

NOTE: Capital costs were assumed to cover a 20-year bond with 5% interest (used 0.0802 conversion factor)

NOTE: MHI is based on data from Montana CEIC based on 2010 estimates.

Indicates rough estimates; need to verify

Big Fork number of household based on population divided by 2.5

| Median Household Income (2010) - American Community Survey. | Current average household sewer bill per year (2008 / 2011) | Current average sewer fee as % of MHI | Notes | Capital cost (million dollars) to meet the numeric nutrient criteria (WERF) | Annual Capital cost to meet the numeric nutrient criteria (L4 WERF) | Annual Operations costs to meet the numeric nutrient criteria L4WERF | Annual Capital and Operations cost (\$) |
|---|---|---------------------------------------|-------|---|---|--|---|
|---|---|---------------------------------------|-------|---|---|--|---|

Big 7 Communities

| | | | | | | | |
|-------------|----------|-------|---|--------|--------------|--------------|--------------|
| \$39,953.00 | \$361.68 | 0.91% | Sewer rates obtained from City in 2011. Plant ~WERF Level 2. \$30.14/month Based on a base rate of \$15.00 with a usage rate of \$4.19/1000 gal of water used | 49.14 | \$3,941,028 | \$1,228,530 | \$5,169,558 |
| \$41,661.00 | \$372.00 | 0.89% | Sewer rates obtained from City in 2011. Plant ~WERF Level 2. Really Level 3 for TN and 1 for TP | 125.58 | \$10,071,516 | \$2,298,540 | \$12,370,056 |
| \$47,152.00 | \$277.80 | 0.59% | Sewer rates obtained from City in 2011. Plant ~ WERF Level 1. | 67.50 | \$5,413,500 | \$1,298,400 | \$6,711,900 |
| \$37,335.00 | \$360.00 | 0.96% | Sewer Fee based on DEQ estimates. While current monthly fee is \$13.50, the \$27 million upgrade in new capital costs plus \$1.125 million in additional O&M costs which would bring them to 5 TN and 0.1 TP (WERF 3) would raise rates to \$30 per month | 62.90 | \$5,044,580 | \$1,161,800 | \$6,206,380 |
| \$45,004.00 | \$218.28 | 0.49% | The numbers for Billings and Great Falls (treatment levels, treatment costs etc.) were obtained from HDR. | 312.50 | \$25,062,500 | \$11,252,800 | \$36,315,300 |
| \$34,319.00 | \$152.14 | 0.44% | Sewer rates obtained from city. 2011 values. | 88.80 | \$7,121,760 | \$2,614,050 | \$9,735,810 |

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|-------------|----------|-------|--|--------|--------------|--------------|--------------|
| \$40,718.00 | \$187.20 | 0.46% | At WERF 1. The numbers for Billings and Great Falls (population, treatment levels, etc.) were obtained from HDR. | 312.50 | \$25,062,500 | \$11,252,800 | \$36,315,300 |
|-------------|----------|-------|--|--------|--------------|--------------|--------------|

Other Large Communities > 1 MGD

| | | | | | | | |
|-------------|----------|-------|---|---------|-------------|-----------|-------------|
| \$35,689.00 | \$600.00 | 1.68% | Assume WERF Tier 1 | 62.50 | \$5,012,500 | \$865,600 | \$5,878,100 |
| \$37,554.00 | \$236.10 | 0.63% | Assume WERF Tier 1 | 46.25 | \$3,709,250 | \$865,600 | \$4,574,850 |
| \$25,161.00 | \$276.00 | 1.10% | Assume WERF 2 (since TN gets to WERF 3 and TP WERF 1) | 24.75 | \$1,984,950 | \$301,984 | \$2,286,934 |
| \$31,729.00 | \$387.60 | 1.22% | Assume WERF 3 based on current treatment levels | 18.50 | \$1,483,700 | \$423,675 | \$1,907,375 |
| \$43,577 | \$240.00 | 0.55% | Assumed WERF Level 1 and 5,000 gallons usage. Rate is \$9.15 flat plus \$2.15 per 1,000 gallons | \$22.50 | \$1,804,500 | \$597,264 | \$2,401,764 |

Non-Lagoon Facilities with < 1MGD

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|----------|----------|-------|---------------|--------|-----------|-----------|-------------|
| \$38,750 | \$532.20 | 1.37% | Upgrade to RO | \$5.67 | \$454,606 | \$580,900 | \$1,035,506 |
|----------|----------|-------|---------------|--------|-----------|-----------|-------------|

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|----------|----------|-------|---|--------|-----------|-----------|-----------|
| \$50,729 | \$362.40 | 0.71% | Assumed WERF Level 2. Correct? Paul. | \$5.46 | \$437,892 | \$63,408 | \$501,300 |
| \$46,442 | \$363.00 | 0.78% | Level 1. | \$4.25 | \$340,850 | \$164,464 | \$505,314 |
| \$33,776 | \$535.08 | 1.58% | | \$3.75 | \$300,750 | \$125,512 | \$426,262 |

Lagoons

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|-------------|----------|-------|---|---------|-----------------|--------------|----------------|
| \$31,375.00 | \$200.00 | 0.64% | Assume WERF 1 | \$4.36 | \$ 349,672.00 | 94,810.00 | \$444,482.00 |
| \$44,833 | \$138.48 | 0.31% | 4000 gallons. Base rate \$9.48 at 3000 gallons plus \$2.06 for next 1,000 gallons | \$14.02 | \$ 1,124,195.48 | 246,140.40 | \$1,370,335.88 |
| \$40,320 | \$409.56 | 1.02% | Moving from an existing lagoon to mechanical plant with land application. Ref: planning document--To get to variance only. Because this would be a land application system, so theoretically, the N and P would be zero to the Clark Fork | \$71.94 | \$1,261,145.00 | \$502,493.00 | \$1,763,638.00 |
| \$42,821 | \$213.96 | 0.50% | | \$28.34 | \$2,272,868.00 | \$284,430.00 | \$2,557,298.00 |

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|----------|--------|-------|--|---------|----------------|--------------|----------------|
| \$50,123 | 305.28 | 0.61% | Sewer Fee and MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county data. | \$26.16 | \$2,098,032.00 | \$308,132.50 | \$2,406,164.50 |
| \$44,398 | 580.36 | 1.31% | | \$10.90 | \$874,180.00 | \$142,215.00 | \$1,016,395.00 |
| \$62,614 | 600.00 | 0.96% | | \$0.57 | \$45,457.36 | \$7,110.75 | \$52,568.11 |
| \$29,000 | 259.56 | 0.90% | | \$3.49 | \$279,737.60 | \$30,813.25 | \$310,550.85 |
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| Annual Additional Cost per Household (increase in sewer rate) | Predicted average household sewer fee to meet criteria | Expected % MHI to Meet Base Numeric Nutrient Criteria (plus current wastewater fees) | Percent increase in Wastewater bill | | |
|---|--|--|--|--|--|
| | | | | | |
| \$671 | \$1,033 | 2.58 | 186% | | |
| \$846 | \$1,218 | 2.92 | 228% | | |
| \$544 | \$822 | 1.74 | 196% | | |
| \$442 | \$802 | 2.15 | 123% | | |
| \$868 | \$1,086 | 2.41 | 398% | | |
| \$353 | \$505 | 1.47 | 232% | | |

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|--|---------|---------|------|------|------------------------|--|
| | \$1,513 | \$1,700 | 4.18 | 808% | | |
| | | | | | | |
| | \$1,844 | \$2,444 | 6.85 | 307% | | |
| | \$1,300 | \$1,537 | 4.09 | 551% | | |
| | \$1,093 | \$1,369 | 5.44 | 396% | | |
| | \$699 | \$1,087 | 3.43 | 180% | | |
| | \$648 | \$888 | 2.04 | 270% | | |
| | | | | | 265-6719 - City Office | |
| | \$639 | \$1,171 | 3.02 | 120% | | |

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|-------|---------|------|------|--|
| \$959 | \$1,321 | 2.60 | 264% | |
| \$477 | \$840 | 1.81 | 131% | |
| \$536 | \$1,071 | 3.17 | 100% | |

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| \$1,113.99 | \$1,314 | 4.19 | 557% |
| \$1,062.28 | \$1,201 | 2.68 | 767% |
| \$1,158.76 | \$1,568 | 3.89 | 283% |
| \$1,358.10 | \$1,572 | 3.67 | 635% |

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|------------|---------|------|------|--|--|
| \$2,280.72 | \$2,586 | 5.16 | 747% | | |
| \$595.08 | \$1,175 | 2.65 | 103% | | |
| \$991.85 | \$1,592 | 2.54 | 165% | | |
| \$1,327.14 | \$1,587 | 5.47 | 511% | | |
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WERF

| Level | Description | Capital Cost (\$/gpd) | Operations (\$1/ MG/day Treated) |
|---------|------------------------------|-----------------------|----------------------------------|
| Level 1 | No N and P removal | 9.3 | 250 |
| Level 2 | 1 mg/l TP; 8 mg/l TN | 12.7 | 350 |
| Level 3 | 0.1-0.3 mg/l TP; 4-8 mg/l TN | 14.4 | 640 |
| Level 4 | <0.1 mg/l TP; 3 mg/l TN | 15.3 | 880 |
| Level 5 | <0.01 mg/l TP; 1 mg/l TN | 21.8 | 1370 |

| Costs to Meet Criteria | Capital Cost(\$million/MGD) | Design Flow | Facility Upgrade Capital Costs (\$million) | Annualized Capital Costs (Assumed 20-yr bond & 5% interest; \$million/year) |
|------------------------|-----------------------------|-------------|--|---|
| Kalispell | 9.1 | 5.4 | \$49.14 | \$3.94 |
| Bozeman | 9.1 | 13.8 | \$125.58 | \$10.07 |
| Helena | 12.5 | 5.4 | \$67.50 | \$5.41 |
| Butte | 7.4 | 8.5 | \$62.90 | \$5.04 |
| Billings | 12.5 | 25 | \$312.50 | \$25.06 |
| Missoula | 7.4 | 12 | \$88.80 | 7.12176 |
| Great Falls | 12.5 | 25 | \$312.50 | 25.0625 |
| Livingston | 12.5 | 5 | \$62.50 | \$5.01 |
| Miles City | 12.5 | 3.7 | \$46.25 | \$3.71 |
| Hamilton | 12.5 | 1.98 | \$24.75 | 1.98495 |
| Lewistown | 7.4 | 2.5 | \$18.50 | 1.4837 |
| Havre | 12.5 | 1.8 | \$22.50 | 1.8045 |
| Columbia Falls | 7.4 | 0.766 | \$5.67 | 0.45461 |
| Manhattan | 9.1 | 0.6 | \$5.46 | 0.43789 |
| Lolo | 12.5 | 0.34 | \$4.25 | 0.34085 |
| Stephensville | 12.5 | 0.3 | \$3.75 | 0.30075 |
| Philipsburg | 21.8 | 0.2 | \$4.36 | \$0.35 |
| Cut Bank | 21.8 | 0.643 | \$14.02 | \$1.12 |
| Deer Lodge | 21.8 | 3.3 | \$71.94 | \$5.77 |
| Glendive | 21.8 | 1.3 | \$28.34 | 2.27287 |
| Red Lodge | 21.8 | 1.2 | \$26.16 | 2.09803 |
| Big Fork | 21.8 | 0.5 | \$10.90 | 0.87418 |
| Highwood | 21.8 | 0.026 | \$0.57 | 0.04546 |
| Circle | 21.8 | 0.16 | \$3.49 | 0.27974 |

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| Annualized Capital Costs (Assumed 20-yr bond & 5% interest; \$million/year) | Operations (\$1/ MG/day Treated) | Operations Costs (\$/ year/ 1 MGD) | Actual Flow | Facility Upgrade Operations Costs (annual) based on Facility MGD | Membrane Replacement Cost (\$24,000 /yr/1 MGD)* Actual Flow |
|---|----------------------------------|------------------------------------|-------------|--|---|
| \$3,941,028.00 | 1020 | 372,300.00 | 3.10 | 1,154,130.00 | 74,400.00 |
| \$10,071,516.00 | 1020 | 372,300.00 | 5.80 | 2,159,340.00 | 139,200.00 |
| \$5,413,500.00 | 1120 | 408,800.00 | 3.00 | 1,226,400.00 | 72,000.00 |
| \$5,044,580.00 | 730 | 266,450.00 | 4.00 | 1,065,800.00 | 96,000.00 |
| \$25,062,500.00 | 1120 | 408,800.00 | 26.00 | 10,628,800.00 | 624,000.00 |
| \$7,121,760.00 | 730 | 266,450.00 | 9.00 | 2,398,050.00 | 216,000.00 |
| \$25,062,500.00 | 1120 | 408,800.00 | 26 | 10,628,800.00 | 624,000.00 |
| \$5,012,500.00 | 1120 | 408,800.00 | 2.00 | 817,600.00 | 48,000.00 |
| \$3,709,250.00 | 1120 | 408,800.00 | 2.00 | 817,600.00 | 48,000.00 |
| \$1,984,950.00 | 1120 | 408,800.00 | 0.68 | 277,984.00 | 24,000.00 |
| \$1,483,700.00 | 730 | 266,450.00 | 1.50 | 399,675.00 | 24,000.00 |
| \$1,804,500.00 | 1120 | 408,800.00 | 1.38 | 564,144.00 | 33,120.00 |
| \$454,605.68 | 730 | 266,450.00 | 2.00 | 532,900.00 | 48,000.00 |
| \$437,892.00 | 1020 | 372,300.00 | 0.16 | 59,568.00 | 3,840.00 |
| \$340,850.00 | 1120 | 408,800.00 | 0.38 | 155,344.00 | 9,120.00 |
| \$300,750.00 | 1120 | 408,800.00 | 0.29 | 118,552.00 | 6,960.00 |
| \$349,672.00 | 1370 | 450,050.00 | 0.20 | 90,010.00 | 4,800.00 |
| \$1,124,195.48 | 1120 | 358,800.00 | 0.64 | 230,708.40 | 15,432.00 |
| \$5,769,588.00 | 1370 | 450,050.00 | 1.06 | 477,053.00 | 25,440.00 |
| \$2,272,868.00 | 1370 | 450,050.00 | 0.6 | 270,030.00 | 14,400.00 |
| \$2,098,032.00 | 1370 | 450,050.00 | 0.65 | 292,532.50 | 15,600.00 |
| \$874,180.00 | 1370 | 450,050.00 | 0.30 | 135,015.00 | 7,200.00 |
| \$45,457.36 | 1370 | 450,050.00 | 0.015 | 6,750.75 | 360.00 |
| \$279,737.60 | 1370 | 450,050.00 | 0.065 | 29,253.25 | 1,560.00 |

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| Total Operations costs including membrane replacement |
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| 1,228,530.00 |
| 2,298,540.00 |
| 1,298,400.00 |
| 1,161,800.00 |
| 11,252,800.00 |
| 2,614,050.00 |
| \$11,252,800.00 |
| \$865,600.00 |
| \$865,600.00 |
| 301,984.00 |
| 423,675.00 |
| \$597,264.00 |
| \$580,900.00 |
| \$63,408.00 |
| \$164,464.00 |
| \$125,512.00 |
| \$94,810.00 |
| \$246,140.40 |
| \$502,493.00 |
| \$284,430.00 |
| \$308,132.50 |
| \$142,215.00 |
| \$7,110.75 |
| \$30,813.25 |

| Community | Current Treatment Technology |
|-------------------|--|
| > 1 MGD | |
| Kalispell | Already below variance levels; achieving avg. 0.12 mg/l TP and 10 mg/l TN. Town expected to pay an addition \$6,967,150.56 annually to achieve 2% MHI. |
| Bozeman | Already below variance levels; should be close to achieving 1 mg/l TP and 3 -5 mg/l TN starting in 2011/2-12. Town expected to pay an additional \$8,319,750.2 annually to achieve 2% MHI. |
| Helena | After optimization study, should be achieving variance levels. Currently at 3 mg/l TP and 10 mg/l TN. Town expected to pay an additional \$9,633,963.3 annually to achieve 2%MHI. |
| Butte | Under Order to Construct to membrane BNR Will already meet variance levels after upgrade. The \$27 million upgrade in new capital costs plus \$1.125 million in additional O&M costs which would bring them to 5 TN and 0.1 TP. Upgrade would result in 1.5% MHI. Additional costs needed? |
| Missoula | Already meets Clark Fork criteria w/ mixing zone. Achieving 8.2 mg/l TN; 0.16 -0.4 mg/l TP. Would the town be expected to pay more (~\$18 million annually) towards 2% MHI or not since they are achieving the criteria? |
| Great Falls | Conventional 2ndary activated sludge (max 21-MGD; avg. 10 MGD). Based on Billings case study, likely long-term variance limits of Level 4 for WERF (0-.1 mg/l TP; 3 mg/l TN) |
| Billings | 2ndary treatment; Design flow of 26 MGD (avg.) and 40 MGD max. Based on Billings case study, likely long-term variance limits of Level 4 for WERF (0-.1 mg/l TP; 3 mg/l TN) |

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| Livingston | Based on existing high costs, likely that meeting 1 mg/l and 10 TN would be the feasible limits. MHI of 3.05 percent to achieve WERF level 3. |
| Miles City | 2011 permit; calculated variance limits to <0.1 mg/l TP; 3 mg/l TN |
| Hamilton | BNR facility. t w/ extended aeration system. Oxidation ditch w/ rotating brush aerators. 3 clarifiers. Upgraded in 2010. |
| Lewistown | Already below variance levels;BNR plant. Lready below proposed interim effluent limits (0.8 mg/l TP; 3-4 mg/l TN). |
| Facilities with < 1MGD | |
| Manhattan | Discharges into Diva Ditch. Permit renewed in 2010. Denitrification with fixed film suspended growth system, clarifiers and aerobic sludge digestion, UV. DMR data from winter quarter shows 11 mg/l TN and 1 mg/l TP. 2008-2010 showed avg. TN of 14 mg/l TN and 4 mg/l TP. |
| Columbia Falls | Columbia Falls already meets variance level standards. Actual cost of \$3,927,688 |
| Havre | Discharges into the Milk River. Permit renewed in 2011. Activated sludge facility with effluent chlorination. 2006-2010 data showed avg. TP of 3.4 (TN not required). 2011 DMR showed TN of 19.4 mg/l; Tp of 1.3 mg/l. |
| Lagoons | |
| Philipsburg | lagoon to simple mechanical system - ref: Gary Swanson, consulting engineer- 15TN, 2TP; Do we have actual costs for the upgrade? |
| Cut Bank | |

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|------------|--|
| Deer Lodge | Moving from an existing lagoon to mechanical plant with land application. Ref: planning document--To get to variance only. Because this would be a land application system, so theoretically, the N and P would be zero to the Clark Fork |
| Glendive | Upgrade from a lagoon to mechanical plant - BNR or otherwise would result in > 2%MHI |
| Redlodge | Upgrade from a lagoon to mechanical plant - BNR or otherwise would result in >1.5% MHI |

2% MHI information
draft numbers pending input

| Flow Category | Community Population | Number of Households (Population / 2.5) based on 2000 Census | Median Household Income (2010) - countywide MHI. Recommend updating for service area. | Current average household sewer bill per year (2008 / 2011) |
|---------------|----------------------|--|---|---|
|---------------|----------------------|--|---|---|

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|---------------------------------|---------|--------|-------------|----------|
| > 1 MGD (1 mg/l TP; 10 mg/l TN) | 27,544 | 10,012 | \$45,594.00 | \$216.00 |
| > 1 MGD (1 mg/l TP; 10 mg/l TN) | 37,280 | 14,614 | \$47,065.00 | \$372.00 |
| > 1 MGD (1 mg/l TP; 10 mg/l TN) | 28,190 | 12,337 | \$52,317.00 | \$265.44 |
| > 1 MGD (1 mg/l TP; 10 mg/l TN) | 33,525 | 14,041 | \$40,055.00 | \$360.00 |
| > 1 MGD (1 mg/l TP; 10 mg/l TN) | 108,623 | 28,290 | \$40,130.00 | \$152.14 |
| > 1 MGD (1 mg/l TP; 10 mg/l TN) | 82,178 | 23,998 | \$40,434.00 | \$187.20 |
| > 1 MGD (1 mg/l TP; 10 mg/l TN) | 104,170 | 41,841 | \$45,004.00 | \$218.28 |

| | | | | |
|---------------------------------|-------|--------|--------|----------|
| > 1 MGD (1 mg/l TP; 10 mg/l TN) | 7414 | 2965.6 | 35,689 | \$600.00 |
| > 1 MGD (1 mg/l TP; 10 mg/l TN) | 9500 | 3800 | 37,554 | \$236.10 |
| > 1 MGD (1 mg/l TP; 10 mg/l TN) | 5,200 | 2080 | 25,161 | \$276.00 |
| > 1 MGD (1 mg/l TP; 10 mg/l TN) | 5,813 | 2,325 | 31,729 | \$387.60 |

Facilities with

| | | | | |
|--|-----------|-------|----------|----------|
| Yes | 1,520 | 523 | \$50,729 | \$362.40 |
| Yes- but Columbia Falls already meets it | 4,688 | 1,621 | \$38,750 | \$532.20 |
| | 10,325.00 | 4130 | \$38,082 | 240.00 |

| | | | | |
|------|-------|-------|----------|----------|
| Yes. | 820 | 399 | 35806.00 | 200 |
| Yes | 2,869 | 1,290 | \$29,000 | \$138.48 |

| | | | | |
|-----|----------|---------|----------|----------|
| Yes | 3,111 | 1,522 | \$40,320 | \$409.56 |
| | 4621.00 | 1848.40 | 37000.00 | 213.96 |
| | 9,756.00 | 3,902 | \$40,379 | 305.28 |

| Current average sewer fee as % of MHI | Notes | Capital cost (million dollars) to meet the approximate variance levels (WERF) | Annual Capital cost to meet the approximate variance levels (L4 WERF) |
|---------------------------------------|-------|---|---|
|---------------------------------------|-------|---|---|

> 1 MGD

| | | | |
|-------|---|---------|----------------|
| 0.47% | Already meeting variance levels. Sewer rates obtained from City in 2011. Plant ~WERF Level 2. | \$0.00 | \$0.00 |
| 0.79% | Already meeting variance levels. Sewer rates obtained from City in 2011. Plant ~WERF Level 2. Really Level 3 for TN and 1 for TP | \$0.00 | \$0.00 |
| 0.51% | Sewer rates obtained from City in 2011. Plant ~ WERF Level 1. | \$18.36 | \$1,472,472.00 |
| 0.90% | Will already meet variance levels after upgrade. While current monthly fee is \$13.50, the \$27 million upgrade in new capital costs plus \$1.125 million in additional O&M costs which would bring them to 5 TN and 0.1 TP would raise rates to \$30 per month | \$27.00 | \$2,165,400.00 |
| 0.38% | Already meets variance levels | \$0.00 | \$0.00 |
| 0.46% | and Great Falls (treatment levels, cost, etc.) were obtained from HDR. | \$85.00 | \$6,817,000.00 |
| 0.49% | and Great Falls (treatment levels, cost, etc.) were obtained from HDR. | \$85.00 | \$6,817,000.00 |

| | | | |
|-------|--|-------|--------------|
| 1.68% | | 17.00 | 1,363,400.00 |
| 0.63% | | 22.20 | 1,780,440.00 |
| 1.10% | | 5.00 | 793,980.00 |
| 1.22% | | 1.00 | 200,500.00 |

Facilities with < 1MGD

| | | | |
|-------|---|---------|----------------|
| 0.71% | Mainly designed to remove ammonia and some TN, but now have NO3 limit. May be able to meet with operational changes. TP of 2 mg/l may require more capital & O&M expenses. Ref: planning document, SRF loan application | \$7.56 | \$606,312.00 |
| 1.37% | Upgrade to an existing Chemical P-removal plant - actual effluent concentrations are 4 TN and 0.05TP-- already included in current fee | \$0.00 | \$0.00 |
| 0.63% | Sewer Fee and MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county data. | \$26.40 | \$2,117,280.00 |

Lagoons

| | | | |
|-------|--|---------|----------------|
| 0.56% | lagoon to simple mechanical system - ref: Gary Swanson, consulting engineer- 15TN, 2TP | \$0.68 | \$54,536.00 |
| 0.48% | 4000 gallons. Base rate \$9.48 at 3000 gallons plus \$2.06 for next 1,000 gallons | \$21.80 | \$1,018,540.00 |

| | | | |
|-------|--|---------|----------------|
| 1.02% | | \$15.25 | \$1,261,145.00 |
| 0.58% | | \$10.00 | \$802,000.00 |
| | Sewer Fee and MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county data. | \$10.00 | \$802,000.00 |

| Annual Operations costs to meet the approximate variance levels L4WERF | Annual Capital and Operations cost (\$) | Annual Additional Cost per Household (increase in sewer rate) | Predicted average household sewer fee to meet criteria | Expected % MHI to Meet Variance Numbers (plus current wastewater fees) |
|--|---|---|--|--|
|--|---|---|--|--|

| | | | | |
|--------------|----------------|----------|-------|-------------|
| 0.00 | \$0.00 | \$0.00 | \$216 | 0.47 |
| 0.00 | \$0.00 | \$0.00 | \$372 | 0.79 |
| 109,500.00 | \$1,581,972.00 | \$128.23 | \$394 | 0.75 |
| 1,125,000.00 | \$3,290,400.00 | \$234.34 | \$594 | 1.48 |
| \$0.0 | \$0.00 | \$0.00 | \$152 | 0.38 |
| \$949,000.0 | \$7,766,000.00 | \$323.61 | \$511 | 1.26 |
| \$949,000.0 | \$7,766,000.00 | \$185.61 | \$404 | 0.90 |

| | | | | |
|--------------|----------------|----------|---------|-------------|
| \$73,000.00 | \$1,436,400.00 | \$484.35 | \$1,084 | 3.04 |
| \$459,900.00 | \$2,240,340.00 | \$589.56 | \$826 | 2.20 |
| \$238,000.00 | \$1,031,980.00 | \$496.14 | \$772 | 3.07 |
| \$150,000.00 | \$350,500.00 | \$150.74 | \$538 | 1.70 |

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

| | | | | | | |
|--|------------|----------------|------------|---------|------|--|
| | 100,000.00 | \$706,312.00 | \$1,350.50 | \$1,713 | 3.38 | |
| | 0.00 | \$0.00 | \$0.00 | \$532 | 1.37 | |
| | 643860 | \$2,761,140.00 | \$668.56 | \$909 | 2.39 | |

| | | | | | | |
|--|--|--|--|--|--|--|
| | | | | | | |
|--|--|--|--|--|--|--|

| | | | | | | |
|--|----------|----------------|----------|-------|------|--|
| | 7,300.00 | \$61,836.00 | \$154.98 | \$355 | 0.99 | |
| | 7,300.00 | \$1,025,840.00 | \$795.22 | \$934 | 3.22 | |

| | | | | |
|------------|----------------|------------|---------|------|
| 602,000.00 | \$1,863,145.00 | \$1,224.14 | \$1,634 | 4.05 |
| 300,000.00 | \$1,102,000.00 | \$596.19 | \$810 | 2.19 |
| 300,000.00 | \$1,102,000.00 | \$282.39 | \$588 | 1.46 |

| | Percent increase in Wastewater bill | 2% MHI | Total additional annual amount town would spend total to get to 2% MHI | |
|--|--|------------|---|-----------------|
| | | | | |
| | 0% | \$911.88 | \$6,967,150.56 | \$6,967,150.56 |
| | 0% | \$941.30 | \$8,319,750.20 | \$8,319,750.20 |
| | 48% | \$1,046.34 | \$9,633,963.30 | \$9,633,963.30 |
| | 65% | \$801.10 | \$6,193,485.10 | \$6,193,485.10 |
| | 0% | \$802.60 | \$18,401,513.40 | \$18,401,513.40 |
| | 173% | \$808.68 | \$14,914,277.04 | \$14,914,277.04 |
| | 85% | \$900.08 | \$28,527,193.80 | \$28,527,193.80 |

| | | | |
|--|------|------------|--------------|
| | 81% | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | 373% | | |
| | | \$1,014.58 | \$341,090.14 |
| | 0% | | |
| | | \$775.00 | \$393,578.80 |
| | 279% | | |
| | | | |
| | 77% | | |
| | | \$716.12 | \$205,931.88 |
| | 574% | | |
| | | \$580.00 | \$569,560.80 |

| | | |
|------|----------|--------------|
| 299% | | |
| | \$806.40 | \$603,990.48 |
| | | |
| | | |

WERF

| Level | Description | Capital Cost (\$/gpd) | Operations (\$1,000/yr/10 MG Treated) |
|---------|------------------------------|-----------------------|---------------------------------------|
| Level 1 | No N and P removal | 9.3 | 250 |
| Level 2 | 1 mg/l TP; 8 mg/l TN | 12.7 | 350 |
| Level 3 | 0.1-0.3 mg/l TP; 4-8 mg/l TN | 14.4 | 640 |
| Level 4 | <0.1 mg/l TP; 3 mg/l TN | 15.3 | 880 |
| Level 5 | <0.01 mg/l TP; 1 mg/l TN | 21.8 | 1370 |

| Costs to Meet Criteria | Capital Cost (\$million/MGD) | Design Flow | Facility Upgrade Capital Costs (\$million) | Annualized Capital Costs (Assumed 20-yr bond & 5% interest; \$million/year) |
|------------------------|------------------------------|-------------|--|---|
| Kalispell | 0 | 5.4 | \$0.00 | \$0.00 |
| Bozeman | 0 | 13.8 | \$0.00 | \$0.00 |
| Helena | 3.4 | 5.4 | \$18.36 | \$1.47 |
| Butte | Actual Costs | 1 | \$27.00 | \$2.17 |
| Missoula | | | | |
| Great Falls | 3.4 | 25 | \$85.00 | 6.817 |
| Billings | 3.4 | 25 | \$85.00 | \$6.82 |
| Livingston | 3.4 | 5 | \$17.00 | 1.3634 |
| Miles City | 6 | 3.7 | \$22.20 | 1.78044 |
| Hamilton | 5 | 1.98 | \$9.90 | 0.79398 |
| Lewistown | 1 | 2.5 | \$2.50 | 0.2005 |
| Manhattan | | | | |
| Columbia Falls | Actual Costs | 0.766 | \$3,927,688.00 | \$315,000.58 |
| Havre | 6 | 4.4 | \$26.40 | 2.11728 |
| Philipsburg | 3.4 | 0.2 | \$0.68 | \$0.05 |
| Cut Bank | | | | |
| Deer Lodge | | | | |
| Glendive | 10 | | \$10.00 | 0.802 |
| Red Lodge | | | | |

| Annualized Capital Costs (Assumed 20-yr bond & 5% interest; \$million/year) | Operations (\$1/ MG/day Treated) | Operations Costs (\$/ year/ 1 MGD) | Actual Flow | Facility Upgrade Operations Costs (\$/year/1 MGD) based on Facility MGD | Membrane Replacement Cost (\$24,000 /yr/1 MGD)*Actual Flow - not necessary b/c no RO |
|---|----------------------------------|------------------------------------|-------------|---|--|
| \$0.00 | 0 | 0.00 | 3.10 | 0.00 | 0.00 |
| \$0.00 | 0 | 0.00 | 5.80 | 0.00 | 0.00 |
| \$1,472,472.00 | 100 | 36,500.00 | 3.00 | 109,500.00 | 0.00 |
| \$2,165,400.00 | 0 | 0.00 | 4.00 | 1,125,000.00 | 0.00 |
| | | | | | |
| \$6,817,000.00 | 100 | 36,500.00 | 26 | 949,000.00 | 0.00 |
| \$6,817,000.00 | 100 | 36,500.00 | 26.00 | 949,000.00 | 0.00 |
| \$1,363,400.00 | 100 | 36,500.00 | 2.00 | 73,000.00 | 0.00 |
| \$1,780,440.00 | 630 | 229,950.00 | 2 | 459,900.00 | 0.00 |
| \$793,980.00 | | 350,000 | 0.68 | 238,000.00 | |
| \$200,500.00 | | 100,000.00 | 1.5 | 150,000.00 | |

| | | | | | |
|----------------|-----|------------|------|------------|------|
| \$315,000.58 | 0 | 0.00 | 0.37 | 0.00 | 0.00 |
| \$2,117,280.00 | 630 | 229,950.00 | 2.8 | 643,860.00 | 0.00 |
| \$54,536.00 | 100 | 36,500.00 | 0.20 | 7,300.00 | 0.00 |

| | | | | | |
|--------------|--|---------|--|---------|--|
| \$802,000.00 | | 300,000 | | 300,000 | |
|--------------|--|---------|--|---------|--|

| Total Operations costs including membrane replacement |
|--|
| 0.00 |
| 0.00 |
| 109,500.00 |
| 1,125,000.00 |
| |
| \$949,000.00 |
| 949,000.00 |
| \$73,000.00 |
| \$459,900.00 |
| 238,000.00 |
| 150,000.00 |

| |
|--------------|
| \$0.00 |
| \$643,860.00 |
| 7,300.00 |

| |
|---------|
| 300,000 |
|---------|

| | Community | Median Household Income (2010) - countywide MHI. Recommend updating for service area. | Population | Estimated Number of Households (Population / 2.5) based on 2000 Census | Current Average Annual Household Wastewater Bill | Design Flow (MGD) | Actual Flow (MGD) | Current wastewater MHI | Percent MHI needed to get to RO/Base Numeric Nutrient Criteria (including current fees) |
|--|----------------|---|------------|--|--|-------------------|-------------------|------------------------|---|
| | Kalispell | \$39,953.00 | 19,927 | 7,705 | \$216.00 | 5.4 | 3.10 | 0.54% | 2.58% |
| | Bozeman | \$41,661.00 | 37,280 | 14,614 | \$372.00 | 13.8 | 5.80 | 0.89% | 2.92% |
| | Helena | \$47,152.00 | 28,190 | 12,337 | \$265.44 | 5.4 | 3.00 | 0.56% | 1.74% |
| | Butte | \$37,335.00 | 33,525 | 14,041 | \$360.00 | 8.5 | 4.00 | 0.96% | 2.15% |
| | Billings | \$45,004.00 | 104,170 | 41,841 | \$218.28 | 26 | 26 | 0.49% | 2.41% |
| | Missoula | \$34,319.00 | 66,788 | 27,553 | \$152.14 | 12 | 9 | 0.44% | 1.47% |
| | Great Falls | \$40,718.00 | 58,505 | 23,998 | \$187.20 | 26 | 26 | 0.46% | 4.18% |
| | Livingston | \$35,689.00 | 7,044 | 3,188 | \$600.00 | 5 | 2 | 1.68% | 6.85% |
| | Miles City | \$37,554.00 | 8,410 | 3,518 | \$236.10 | 3.7 | 2 | 0.63% | 4.09% |
| | Hamilton | \$25,161.00 | 4,348 | 2,092 | \$276.00 | 1.98 | 0.68 | 1.10% | 5.44% |
| | Lewistown | \$31,729.00 | 5,901 | 2,727 | \$387.60 | 2.5 | 1.5 | 1.22% | 3.43% |
| | Havre | \$43,577.00 | 9,310 | 3,709 | \$240.00 | 1.8 | 1 | 0.55% | 2.04% |
| | Columbia Falls | \$38,750.00 | 4,688 | 1,621 | \$532.20 | 0.766 | 0.37 | 1.37% | 3.02% |
| | Manhattan | \$50,729.00 | 1,520 | 523 | \$362.40 | 0.6 | 0.4 | 0.71% | 2.60% |
| | Lolo | \$46,442.00 | 3,892 | 1,060 | \$363.00 | 0.34 | 0.38 | 0.78% | 1.81% |
| | Stevensville | \$33,776.00 | 1,809 | 795 | \$535.08 | 0.3 | 0.29 | 1.58% | 3.17% |
| | Philipsburg | \$31,375.00 | 820 | 399 | \$200.00 | 0.2 | 0.2 | 0.64% | 4.19% |
| | Cut Bank | \$44,833.00 | 2,869 | 1,290 | \$138.48 | 0.643 | 0.643 | 0.31% | 2.68% |
| | Deer Lodge | \$40,320.00 | 3,111 | 1,522 | \$409.56 | 3.3 | | 1.02% | 3.89% |
| | Glendive | \$42,821.00 | 4935 | 1,883 | \$213.96 | 1.3 | N/A | 0.50% | 3.67% |
| | Redlodge | \$50,123.00 | 2125 | 1,055 | \$305.28 | 1.2 | 0.65 | 0.61% | 5.16% |
| | Big Fork | \$44,398.00 | 4270 | 1,708 | \$580.36 | 0.5 | | 1.31% | 2.65% |
| | Highwood | \$62,614.00 | 176 | 53 | \$600.00 | 0.026 | 0.015 | 0.96% | 2.54% |
| | Circle | \$29,000.00 | 615 | 234 | \$259.56 | 0.16 | 0.065 | 0.90% | 5.47% |

Yellow fill = Greater than 2% MHI to reach to certain level of wastewater treatment

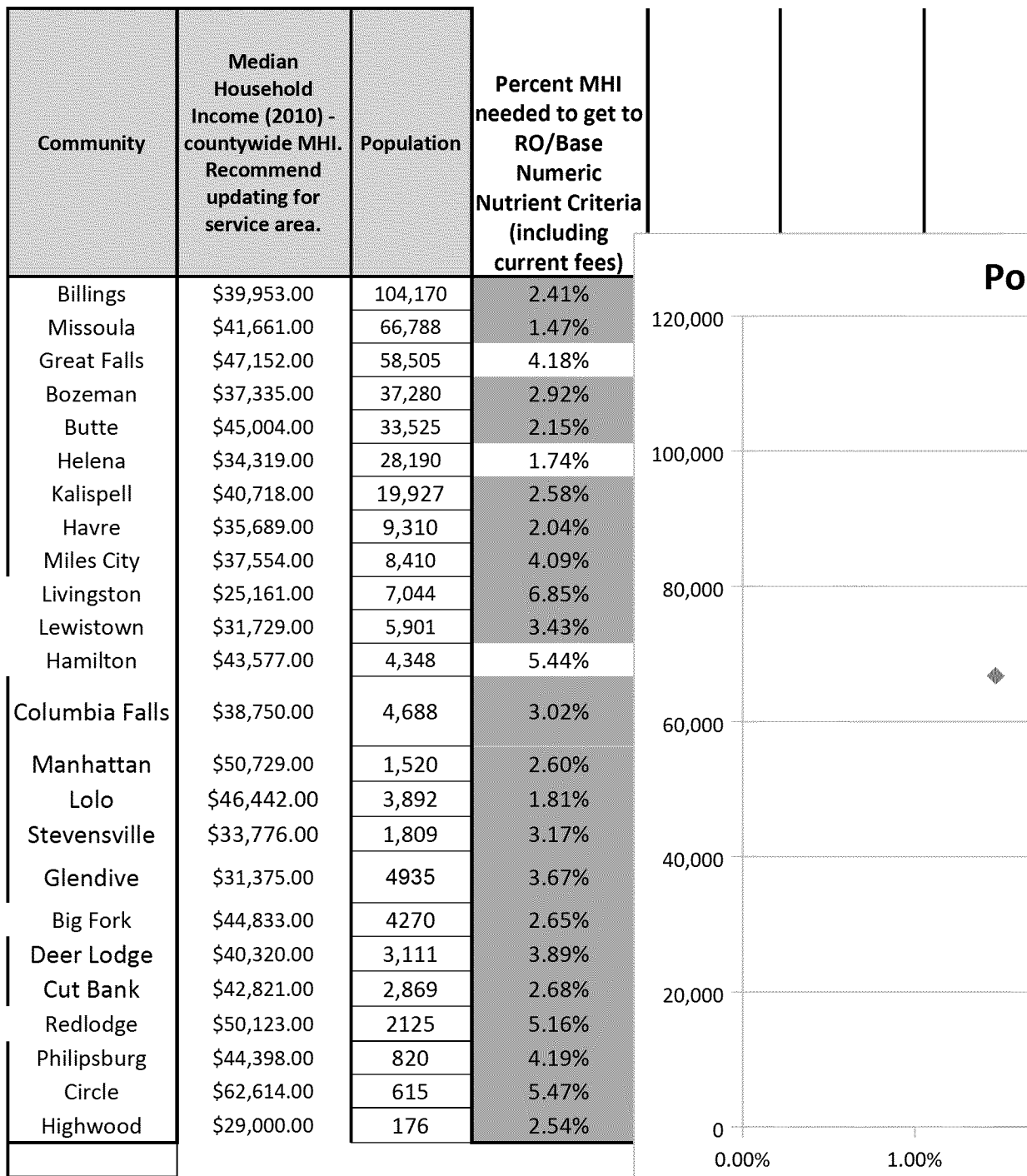
Orange fill = Greater than 100% increase in wastewater fee costs to reach to certain level of w

Blue Fill = Town already meets the standard so no new costs or treatment needed

| Increase over current Wastewater Bill to Reach RO | Percent MHI needed to get to Variance in SB367 (including current fees) | Increase over current Wastewater Bill to Reach Variance | 2% MHI per household | Total additional annual amount Town Would Need to Spend to get to 2% MHI |
|---|---|---|----------------------|--|
| 186% | 0.47% | 0% | \$799 | \$4,492,477 |
| 228% | 0.79% | 0% | \$833 | \$6,740,269 |
| 196% | 0.75% | 48% | \$943 | \$8,359,551 |
| 123% | 1.48% | 65% | \$747 | \$5,429,655 |
| 398% | 0.90% | 85% | \$900 | \$28,527,194 |
| 232% | N/A | N/A | \$686 | \$14,719,915 |
| 808% | 1.26% | 173% | \$814 | \$15,050,586 |
| 307% | | | \$714 | \$362,731 |
| 551% | | | \$751 | \$1,811,700 |
| 396% | | | \$503 | \$475,344 |
| 180% | | | \$635 | \$673,514 |
| 270% | | | \$872 | \$2,342,382 |
| 120% | 1.37% | 0% | \$775 | \$393,579 |
| 264% | 3.38% | 373% | \$1,015 | \$341,090 |
| 131% | | | | |
| 100% | | | | |
| 557% | 0.99% | 77% | \$628 | \$170,573 |
| 767% | 3.22% | 574% | \$897 | \$978,052 |
| 283% | 4.05% | 299% | \$806 | \$603,990 |
| 635% | | | \$856 | \$1,209,752 |
| 747% | | | \$1,002 | \$735,525 |
| 103% | | | \$888 | \$525,381 |
| 165% | | | \$1,252 | \$34,571 |
| 511% | | | \$580 | \$74,983 |

astewater treatment

| | |
|--|--|
| | |
| | |
| | |

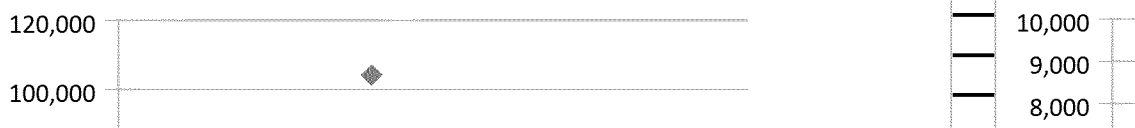


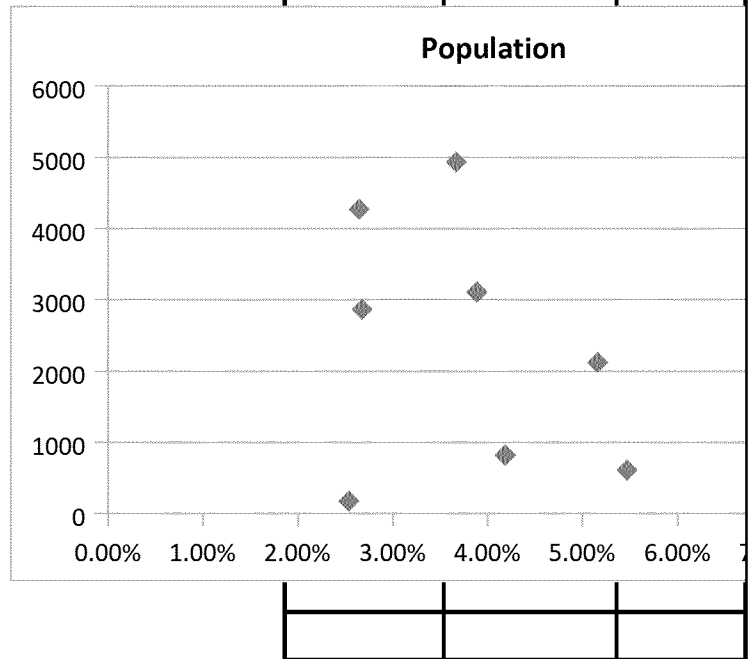
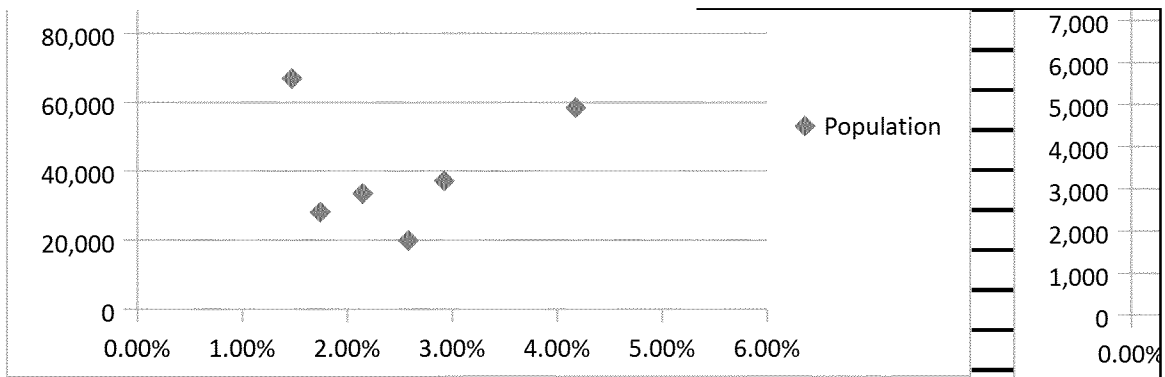
Yellow fill = Greater than 2% MHI to reach to certain level of wastewater treatment

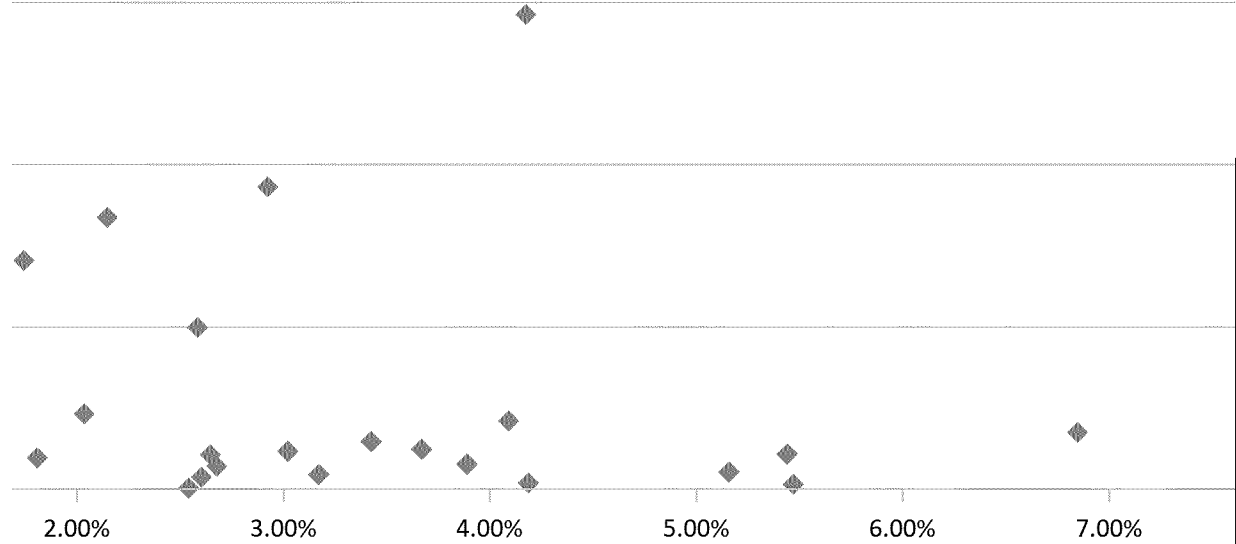
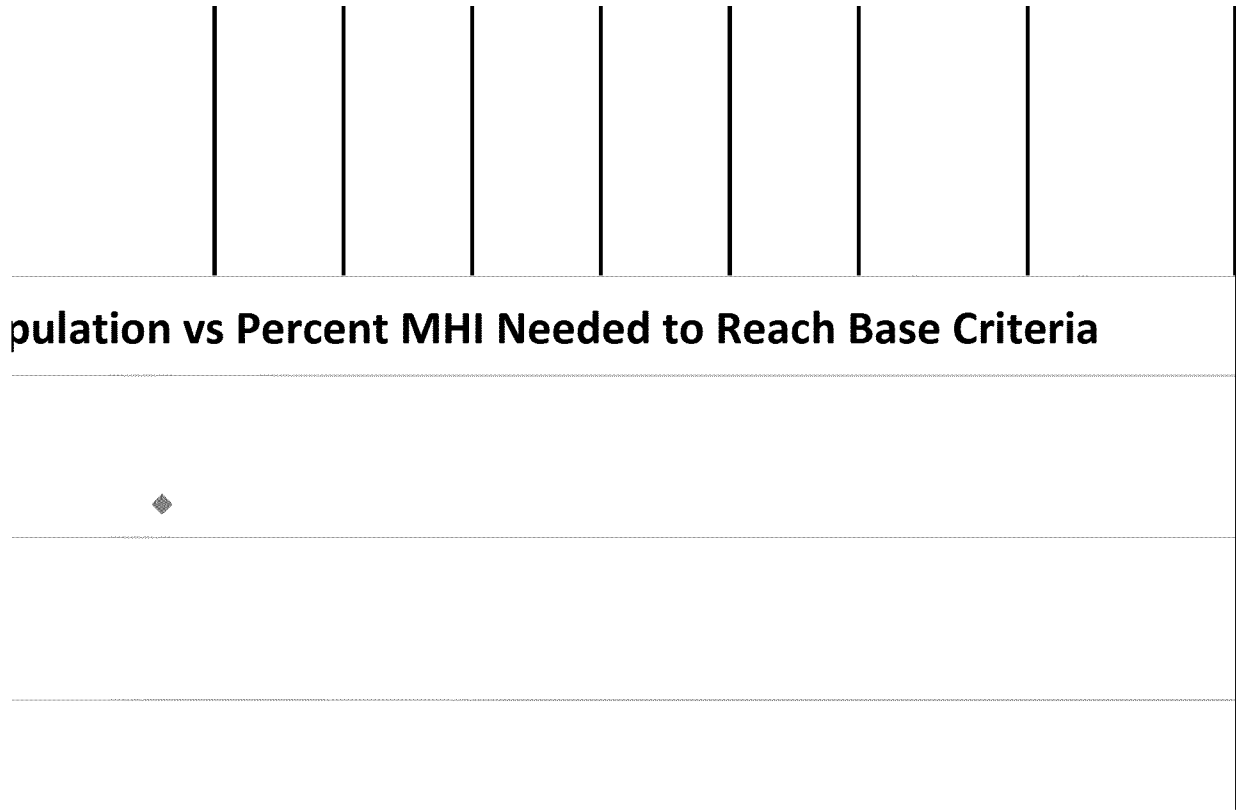
Orange fill = Greater than 100% increase in wastewater fee costs to reach to certain level of waste

Blue Fill = Town already meets the standard so no new costs or treatment needed

Population vs. %MHI--Big Seven Towns



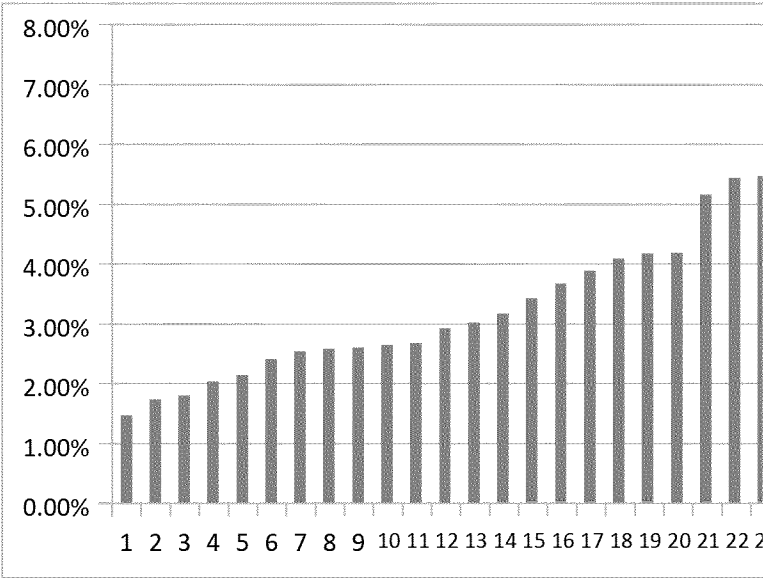


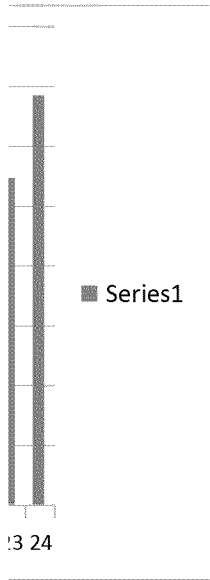


| | | | | | | | |
|---|--|--|--|--|--|--|--|
| water treatment | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Population vs. %MHI--Other Non lagoons | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

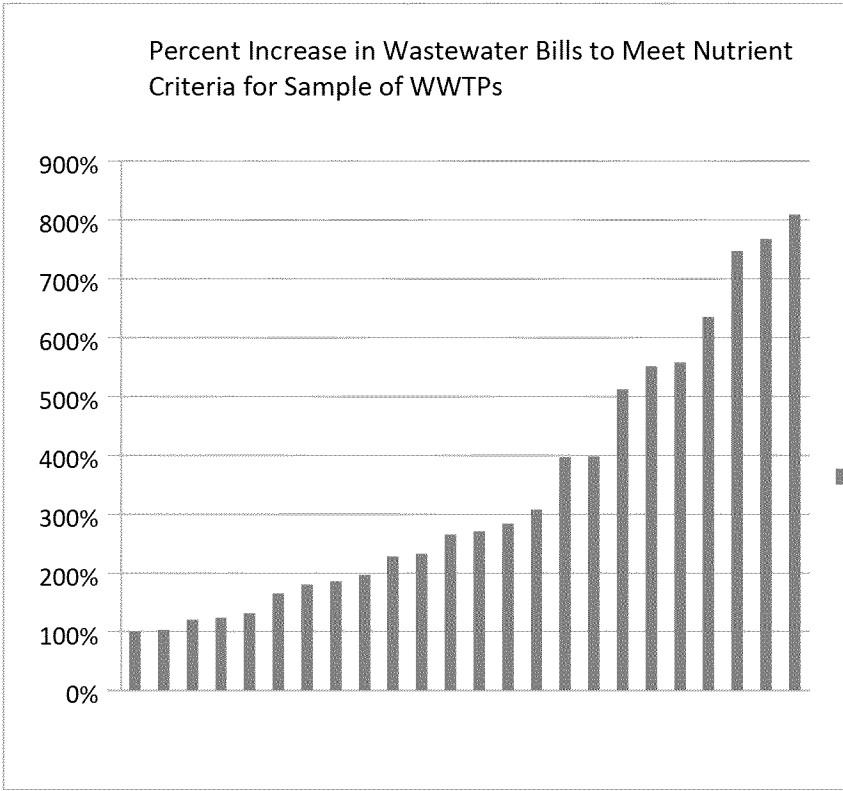
| |
|-------|
| 1.47% |
| 1.74% |
| 1.81% |
| 2.04% |
| 2.15% |
| 2.41% |
| 2.54% |
| 2.58% |
| 2.60% |
| 2.65% |
| 2.68% |
| 2.92% |
| 3.02% |
| 3.17% |
| 3.43% |
| 3.67% |
| 3.89% |
| 4.09% |
| 4.18% |
| 4.19% |
| 5.16% |
| 5.44% |
| 5.47% |
| 6.85% |

Total MHI% to meet nutrient criteria





| |
|------|
| 100% |
| 103% |
| 120% |
| 123% |
| 131% |
| 165% |
| 180% |
| 186% |
| 196% |
| 228% |
| 232% |
| 264% |
| 270% |
| 283% |
| 307% |
| 396% |
| 398% |
| 511% |
| 551% |
| 557% |
| 635% |
| 747% |
| 767% |
| 808% |





| Community | Current Treatment Technology | Design Flow (MGD) | Actual Flow (MGD) | Capital cost (million dollars) to meet the numeric nutrient criteria (WERF) | Annual Capital cost to meet the numeric nutrient criteria (L4 WERF) |
|---|---|-------------------|-------------------|---|---|
| Big 7 Communities | | | | | |
| Kalispell | BNR (modified Johannesburg); 3.1 to 5.4 MGD; ~WERF Level 2--avg. .12 mg/l TP; 10 mg/l TN. | 5.4 | 3.10 | 49.14 | \$3,941,028 |
| Bozeman | Some BNR now; 5-stage Barrdenpho; new plant will be ~WERF Level 2 on average--BNR (1 mg/l TP; 3 mg/l TN starting 2011); current 5.8 mgd; increasing to 13.9 mgd | 13.8 | 5.80 | 125.58 | \$10,071,516 |
| Helena | BNR; ~ WERF Level 1--3 mg/l TP; 10 mg/l TN; design capacity of 5.4; current discharge ~3.0 MGD | 5.4 | 3.00 | 67.50 | \$5,413,500 |
| Butte | Current technology is activated sludge (TN of 18.5 mg/l; TP of 2.11 mg/l); under Order to Construct to membrane BNR; current design is 8.5 MGD. Included in current fee is \$27 million upgrade in new capital costs and \$1.125 million in O&M costs which would bring them to 5 TN and 0.1 TP or ~WERF Level 3 | 8.5 | 4.00 | 62.90 | \$5,044,580 |
| Billings | Secondary treatment; Design flow of 26 MGD (avg.) and 40 MGD max. Costs are estimated from HDR. | 26 | 26 | 312.50 | \$25,062,500 |
| Missoula | Already meets nutrient criteria in Clark Fork with mixing zone. Advanced secondary treatment facility with biological nutrient removal and ultraviolet disinfection. 8.2 mg/l TN; 0.16 -0.4 mg/l TP; get a mixing zone, meeting criteria currently. BNR. Design flow = 12 MGD ; actual flow = 9 MGD. (designed for 10 and 1). (HDR) | 12 | 9 | 88.80 | \$7,121,760 |
| Great Falls | At WERF 1. Conventional Secondary activated sludge (max 21-MGD; avg. 10 MGD). Cost data from HDR. | 26 | 26 | 312.50 | \$25,062,500 |
| Other Large Communities > 1 MGD | | | | | |
| Livingston | Assume WERF Level 1. Discharges into the Yellowstone; permit renewed in 2010; mechanical plant w/ 2 primary clarifiers, 3 rotating biological contactors, UV, installing co-composting. DMR shows 11 mg/l TN average (20 mg/l for May) and 2 mg/l TP (3 mg/l for May). | 5 | 2 | 62.50 | \$5,012,500 |

| | | | | | |
|---|--|-------|------|---------|-------------|
| Miles City | Assume WERF 1. Secondary treatment plus oxidation ditch. 2011 permit. Algae plant study to remove nutrients. Extended aeration system w/2 oxidation ditches w/rotating brush aerators; 2 clarifiers and chlorine basin. TN avg of 23.5 mg/l; TP avg. 3.6 mg/l. | 3.7 | 2 | 46.25 | \$3,709,250 |
| Hamilton | Assume WERF 2 (TN WERF 3 and TP WERF 1). BNR facility w/ extended aeration system. Oxidation ditch w/ rotating brush aerators. 3 clarifiers. Upgraded in 2010. TN avg. 5.5 mg/l; TP avg. 5 mg/l. | 1.98 | 0.68 | 24.75 | \$1,984,950 |
| Lewistown | Assume WERF 3 based on current levels. BNR plant. Focus on TP removal. 0.8 mg/l TP; 3-4 mg/l TN. | 2.5 | 1.5 | 18.50 | \$1,483,700 |
| Havre | Assumed WERF Level 1. Discharges into the Milk River. Permit renewed in 2011. Activated sludge facility with effluent chlorination. 2006-2010 data showed avg. TP of 3.4 (TN not required). 2011 DMR showed TN of 19.4 mg/l; Tp of 1.3 mg/l. | 1.8 | 1.38 | \$22.50 | \$1,804,500 |
| Non-Lagoon Facilities with < 1MGD | | | | | |
| Columbia Falls | Assume WERF Level 3. Newer plant with good control. Designed to achieve 8 mg/l TN | 0.766 | 0.37 | \$5.67 | \$454,606 |
| Manhattan | Assumed WERF Level 2. Discharges into Diva Ditch. Permit renewed in 2010. Denitrification with fixed film suspended growth system, clarifiers and aerobic sludge digestion, UV. DMR data from winter quarter shows 11 mg/l TN and 1 mg/l TP. 2008-2010 showed avg. TN of 14 mg/l TN and 4 mg/l TP. | 0.6 | 0.4 | \$5.46 | \$437,892 |
| Lolo | WERF Level 1. No steps towards nutrient removal. For Lolo, TN is generally less than 30 mg/l and TP less than 7. Generally heaving loadings for Lolo. Sewer rates--Lolo \$30.25-ish/mo - (RSID) based on property values | 0.34 | 0.38 | \$4.25 | \$340,850 |
| Stevensville | WERF Level 1. TN generally below 20 and TP less than 4. | 0.3 | 0.29 | \$3.75 | \$300,750 |
| Lagoons | | | | | |

| | | | | | |
|-------------|---|-------|-------|---------|-----------------|
| Philipsburg | WERF 1--Lagoon - ref: Gary Swanson, consulting engineer- 15TN, 2TP | 0.2 | 0.2 | \$4.36 | \$ 349,672.00 |
| Cut Bank | WERF 0--Lagoon. | 0.643 | 0.643 | \$14.02 | \$ 1,124,195.48 |
| Deer Lodge | WERF Level 0. Moving from an existing lagoon to mechanical plant with land application. Ref: planning document--To get to variance only. Because this would be a land application system, so theoretically, the N and P would be zero to the Clark Fork | 3.3 | 1.06 | \$71.94 | \$1,261,145.00 |
| Glendive | WERF Level 0. Domestic WW lagoon; 3 cell facultative; current O&M costs are <\$; 8-10 capital costs for new plant. O&M increase of ~\$300,000. new avg. 1.15 MGD; PER completed to upgrade to mechanical SBR or BNR plant. | 1.3 | 0.6 | \$28.34 | \$2,272,868.00 |
| Red Lodge | WERF Level 0--Lagoon. | 1.2 | 0.65 | \$26.16 | \$2,098,032.00 |
| Big Fork | WERF Level 0--Lagoon. | 0.5 | 0.3 | \$10.90 | \$874,180.00 |
| Highwood | WERF Level 0--Lagoon. | 0.026 | 0.015 | \$0.57 | \$45,457.36 |
| Circle | WERF Level 0--Lagoon. | 0.16 | 0.065 | \$3.49 | \$279,737.60 |

NOTE: Operation costs include energy and chemical costs only and do not include labor and maintenance cost. A

NOTE: The numbers are intended to provide ROUGH ESTIMATES for discussion purposes and do not reflect the s

NOTE: Capital costs were assumed to cover a 20-year bond with 5% interest (used 0.0802 conversion factor)

NOTE: MHI is based on data from Montana CEIC based on 2010 estimates.



Indicates rough estimates; need to verify

Big Fork number of household based on population divided by 2.5

| | Annual Operations costs to meet the numeric nutrient criteria L4WERF | Annual Capital and Operations cost (\$) | Annual Additional Cost per Household (increase in sewer rate) | Predicted average household sewer fee to meet criteria | Expected % MHI to Meet Base Numeric Nutrient Criteria (plus current wastewater fees) | Percent increase in Wastewater bill |
|-------------------------------|--|---|---|--|--|-------------------------------------|
| 7 Communities | | | | | | |
| | \$1,228,530 | \$5,169,558 | \$671 | \$1,033 | 2.58 | 186% |
| | \$2,298,540 | \$12,370,056 | \$846 | \$1,218 | 2.92 | 228% |
| | \$1,298,400 | \$6,711,900 | \$544 | \$822 | 1.74 | 196% |
| | \$1,161,800 | \$6,206,380 | \$442 | \$802 | 2.15 | 123% |
| | \$11,252,800 | \$36,315,300 | \$868 | \$1,086 | 2.41 | 398% |
| | \$2,614,050 | \$9,735,810 | \$353 | \$505 | 1.47 | 232% |
| | \$11,252,800 | \$36,315,300 | \$1,513 | \$1,700 | 4.18 | 808% |
| Communities > 1 MGD | | | | | | |
| | \$865,600 | \$5,878,100 | \$1,844 | \$2,444 | 6.85 | 307% |

| | | | | | |
|-----------|-------------|---------|---------|-------------|------|
| \$865,600 | \$4,574,850 | \$1,300 | \$1,537 | 4.09 | 551% |
| \$301,984 | \$2,286,934 | \$1,093 | \$1,369 | 5.44 | 396% |
| \$423,675 | \$1,907,375 | \$699 | \$1,087 | 3.43 | 180% |
| \$597,264 | \$2,401,764 | \$648 | \$888 | 2.04 | 270% |

on Facilities with < 1MGD

| | | | | | |
|-----------|-------------|-------|---------|-------------|------|
| \$580,900 | \$1,035,506 | \$639 | \$1,171 | 3.02 | 120% |
| \$63,408 | \$501,300 | \$959 | \$1,321 | 2.60 | 264% |
| \$164,464 | \$505,314 | \$477 | \$840 | 1.81 | 131% |
| \$125,512 | \$426,262 | \$536 | \$1,071 | 3.17 | 100% |

Lagoons

| | | | | | |
|--------------|----------------|---------|---------|-------------|------|
| 94,810.00 | \$444,482.00 | \$1,114 | \$1,314 | 4.19 | 557% |
| 246,140.40 | \$1,370,335.88 | \$1,062 | \$1,201 | 2.68 | 767% |
| \$502,493.00 | \$1,763,638.00 | \$1,159 | \$1,568 | 3.89 | 283% |
| \$284,430.00 | \$2,557,298.00 | \$1,358 | \$1,572 | 3.67 | 635% |
| \$308,132.50 | \$2,406,164.50 | \$2,281 | \$2,586 | 5.16 | 747% |
| \$142,215.00 | \$1,016,395.00 | \$595 | \$1,175 | 2.65 | 103% |
| \$7,110.75 | \$52,568.11 | \$992 | \$1,592 | 2.54 | 165% |
| \$30,813.25 | \$310,550.85 | \$1,327 | \$1,587 | 5.47 | 511% |

s such, these numbers are on the low side.
ite-specific conditions at each plant.

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